


Bohigian Conservation Area

Ten-Year Area Management Plan FY 2016-2025





Wildlife Division Chief



Date

Bohigian Conservation Area Management Plan Approval Page

PLANNING TEAM

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WILDLIFE DIVISION

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OVERVIEW

- **Official Area Name:** Bohigian Conservation Area, # 200706
- **Year of Initial Acquisition:** 2006
- **Acreage:** 437 acres
- **County:** Phelps
- **Division with Administrative Responsibility:** Wildlife
- **Division with Maintenance Responsibility:** Wildlife
- **Statements of Purpose:**

A. Strategic Direction

The Bohigian Conservation Area (CA) was purchased in 2006 with funds from the Stream Stewardship Trust Fund, the Missouri Department of Conservation (the Department) and private donors. The area provides fishing access to Mill Creek, a Blue Ribbon Trout Area. The area will continue to be developed and managed for the protection and enhancement of the area's natural and cultural resources; grassland, glade, woodland and forest wildlife species; and public recreational uses that are compatible with natural resource protection.

B. Desired Future Condition

The desired future condition for Bohigian CA is an area that provides fishing access to Mill Creek; provides early successional grassland, wetland, forest, woodland and glade habitat for associated species; and provides quality spawning habitat with minimal transport of sediments and pollutants.

C. Federal Aid Statement

N/A

GENERAL INFORMATION AND CONDITIONS

I. Special Considerations

- A. **Priority Areas:** Kaintuk Hills Conservation Opportunity Area, Mill Creek
Priority Watershed
- B. **Natural Areas:** None

II. Important Natural Features and Resources

- A. **Species of Conservation Concern:** Species of conservation concern are known from this area. Area Managers should consult the Natural Heritage Database annually and review all management activities with the Natural History Biologist.
- B. **Caves:** None
- C. **Springs:** Hudgens Spring (0.64–6.46 million gallons per day)

III. Existing Infrastructure

- 2 parking lots

IV. Area Restrictions or Limitations

A. Deed Restrictions or Ownership Considerations: None

B. Federal Interest: Federal funds may be used in the management of this land. Fish and wildlife agencies may not allow recreational activities and related facilities that would interfere with the purpose for which the State is managing the land. Other uses may be acceptable and must be assessed in each specific situation.

C. Easements: Electric Cooperative

D. Cultural Resources Findings: Yes, records kept with the Department's Environmental Compliance Specialist. Managers should follow Best Management Practices for Cultural Resources found in the Department Resource Policy Manual.

E. Hazards and Hazardous Materials: None observed.

F. Endangered Species: None observed.

G. Boundary Issues: None

MANAGEMENT CONSIDERATIONS

V. Terrestrial Resource Management Considerations

Bohigian CA is comprised of grassland, wetland, forest, woodland and glade landscapes. These landscapes are managed to provide early successional habitat for all species.

Challenges and Opportunities:

- 1) Manage grasslands, the overstory woodland (including older growth trees) and the understory for grasses and forbs, while providing bare ground for grassland species, and controlling exotic/invasive species in open areas.
- 2) Keep warm-season grass density at a level that is useable and beneficial for multiple glade, grassland and forest community species.

Management Objective 1: Manage grassland landscape in multiple successional stages to provide food and cover for multiple species.

Strategy 1: Provide early successional habitat (needed for bare ground) and thicker nesting cover, in close proximity. Break the area into multiple burn units and burn on a minimum three-year rotation at any given time. (Wildlife)

Strategy 2: Rotate burn seasons to favor either grasses or forbs, depending on limiting factors. (Wildlife)

Management Objective 2: Manage the woodlands to provide appropriate structure and herbaceous diversity. Reduce the basal area in units that have a more closed canopy to enhance the native forb and warm-season grass understory. Allow timber to grow to larger size classes of uneven ages.

Strategy 1: Areas that have already had a basal area reduction from the use of fire or mechanical techniques will be burned with a minimum three-year rotation and frequency, in order to control leaf litter buildup and undesirable re-sprouting. (Wildlife)

Strategy 2: Mechanically thin historically open woodland areas with currently closing canopies. Manage the same as existing open woodlands, conducting prescribed burns on a minimum three-year rotation. (Wildlife)

Strategy 3: Conduct a forest inventory in 2017 and establish permanent vegetative plots in all forest and woodland landscapes to assist managers in future regeneration techniques. (Forestry, Wildlife)

Management Objective 3: Control or eliminate exotic or invasive species in grasslands and woodlands.

Strategy 1: Reduce the growth potential of tall fescue and promote warm-season grasses by rotating prescribed burns later in spring and conducting them in areas where tall fescue has been most detrimental. Burn early in the fall to provide a higher growth potential for tall fescue and spray with a cool-season grass herbicide when tall fescue is more susceptible. (Wildlife)

Strategy 2: Use of a broadleaf herbicide on sericea lespedeza and spotted knapweed (the primary exotic or invasive species in the area). These herbicides will continue to be spot-sprayed seasonally when it is most detrimental to these exotic species. (Wildlife)

VI. Aquatic Resource Management Considerations

Challenges and Opportunities:

- 1) Maintain quality spawning habitat. Hudgens Spring flows through the area and provides quality spawning habitat for rainbow trout. Wetland habitats in the conservation area may contain species of conservation concern.
- 2) Minimize the supply and transport of sediments and pollutants to downstream areas. Bohigian CA lies in the center of the Mill Creek Watershed (a designated priority watershed) and the Mark Twain National Forest (owned by the U. S. Forest Service). The watershed has 62 percent public ownership between the

Department and the U.S. Forest Service. Mill Creek flows through the conservation area for approximately 1.25 miles.

Management Objective 1: Maintain quality Blue Ribbon Trout Area.

Strategy 1: Sample rainbow trout populations every other year. (Fisheries)

Strategy 2: Maintain and enhance current habitat structures for adult rainbow trout. (Fisheries)

Strategy 3: Work with the U.S. Forest Service to maintain and enhance trout habitat on adjoining stream segments in the Mark Twain National Forest. (Fisheries)

Management Objective 2: Minimize the supply and transport of sediments and pollutants into downstream areas. Follow *Watershed and Stream Management Guidelines for Land and Waters Managed by Missouri Department of Conservation* (Missouri Department of Conservation, 2009).

Strategy 1: Minimize any adverse impacts to the watershed by observing protection measures during any disturbance in the riparian zones and around the pond. (Wildlife)

Strategy 2: Use appropriate herbicides when controlling invasive species in the riparian zones and around the ponds. Maintain all existing riparian corridors. (Wildlife)

Strategy 3: Consult Fisheries on all work inside the riparian corridors. (Wildlife)

Strategy 4: Control erosion along the road and trail system. (Wildlife)

Management Objective 3: Manage the wetland/fen to enhance the natural community.

Strategy 1: Use appropriate herbicides when spraying/controlling invasive/exotic species in the wetland areas to enhance natural community structure. (Wildlife)

Strategy 2: Work with appropriate Department staff to minimize effects from development on the fen and wetlands and to encourage their expansion on the landscape. (Wildlife)

VII. Public Use Management Considerations

Challenges and Opportunities:

- 1) Increase public educational opportunities at the area.

Management Objective 1: Increase the awareness and success of habitat management on public lands and promote outdoor education.

Strategy 1: Work with the Outreach and Education Division to promote outdoor skills activities. Work with the Discover Nature in Schools Program when appropriate. (Wildlife)

VIII. Administrative Considerations

Challenges and Opportunities:

- 1) Ensure Department boundaries are marked and visible to public users.

Management Objective 1: Keep current area boundary signs visible and presentable to the public.

Strategy 1: Complete an annual visual survey of all boundary signs. Replace damaged or missing signs. (Wildlife)

MANAGEMENT TIMETABLE

All strategies are considered ongoing unless listed below.

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Terrestrial Resource Management										
<i>Objective 2</i>										
Strategy 3		X								

APPENDICES

Area Background:

The Bohigian CA was purchased in 2006 with funds from the Stream Stewardship Fund, the Department and private donors. The purpose of the purchase was to improve fishing access to Mill Creek, a Blue Ribbon Trout Area. Blue Ribbon Trout Areas include parts of large, cold rivers with excellent trout habitat and smaller streams that support naturally reproducing rainbow trout. Harvest is limited to maintain the maximum density of adult trout, create excellent catch-and-release fishing, and provide the occasional chance to harvest a trophy.

Current Land and Water Types:

Land/Water Type	Acres	% of Area
Forest/Woodland	327	75
Grassland	100	23
Wetland/Fen	10	2
Total	437	100

Public Input Summary:

The draft Bohigian Conservation Area Management Plan was available for a public comment period July 1–31, 2015. The Missouri Department of Conservation received comments from two respondents (Appendix A). The Bohigian Conservation Area Planning Team carefully reviewed and considered these ideas as they finalized this document. A brief summary of public input themes, including how they were incorporated or why they were not, can be found below. Rather than respond to each individual comment, comments are grouped into general themes and are addressed collectively.

Department responses to themes and issues identified through Bohigian Conservation Area public comment period

Suggests including more specific information in the area plan.

Missouri Department of Conservation area management plans are strategic-level plans that guide management at a broad level. These plans document strategies for natural resource management and public use on conservation areas. Conservation area plans also help communicate an area's purpose and management direction to staff and interested citizens. Information has been added to this plan about the Blue Ribbon trout area designation and a current habitat map. For other information, contact the area manager, headquartered at the West Plains Office (417-256-7161).

References:

Missouri Department of Conservation. (2009). *Watershed and stream management guidelines for land and waters managed by Missouri Department of Conservation*. Jefferson City, Missouri: Missouri Department of Conservation.
<http://forestkeepers.org/wp-content/uploads/2013/05/Watershed-and-Stream-Management-Guidelines-for-MDC-Land1.pdf>

Nigh, T. A., & Schroeder, W. A. (2002). *Atlas of Missouri ecoregions*. Jefferson City, Missouri: Missouri Department of Conservation.

Maps:

Figure 1: Area Map

Figure 2: Aerial Map

Figure 3: Topographic Map

Figure 4: Land Cover Map

Additional Appendices:

Appendix A. Bohigian Conservation Area Management Plan Public Comments

Figure 1: Area Map

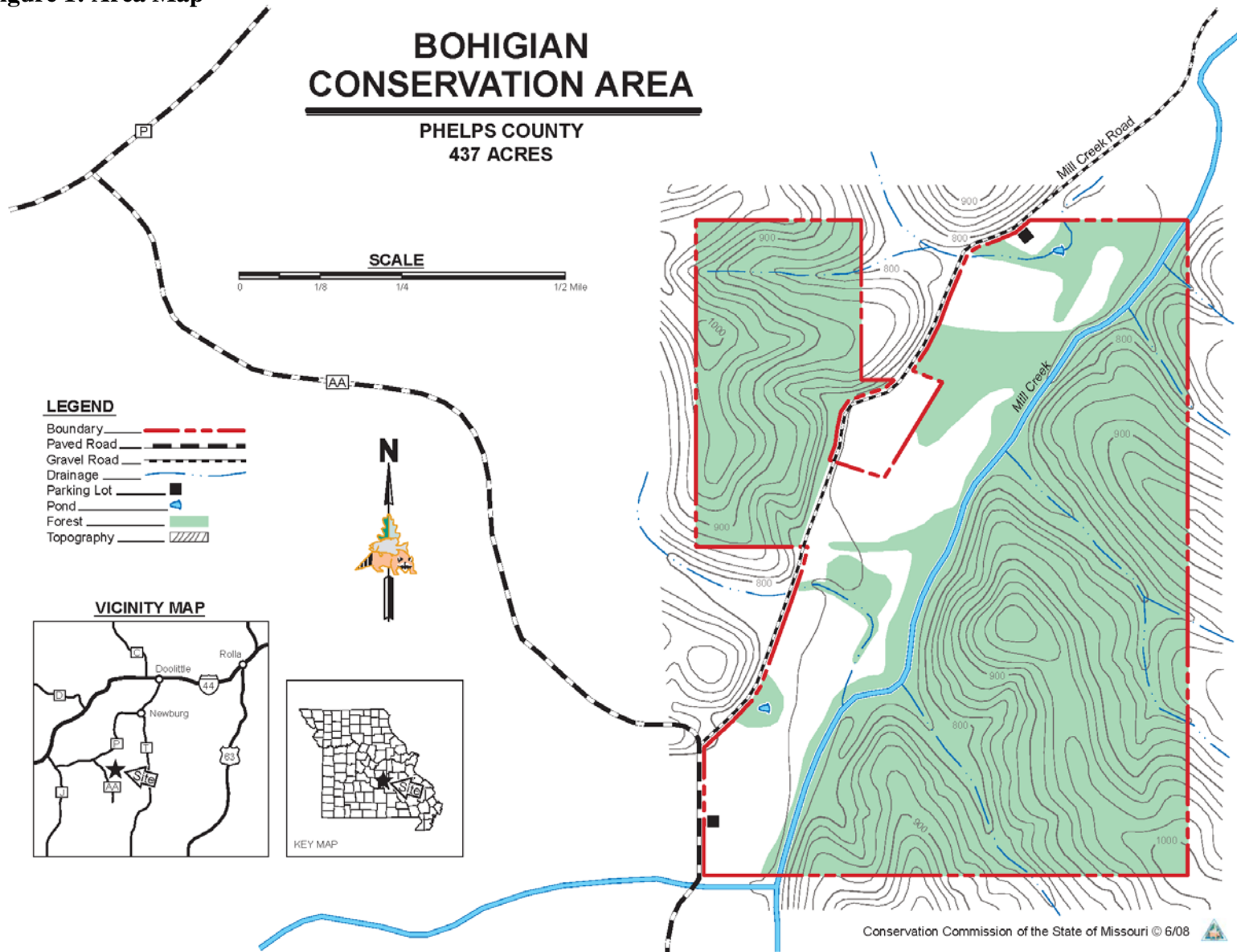
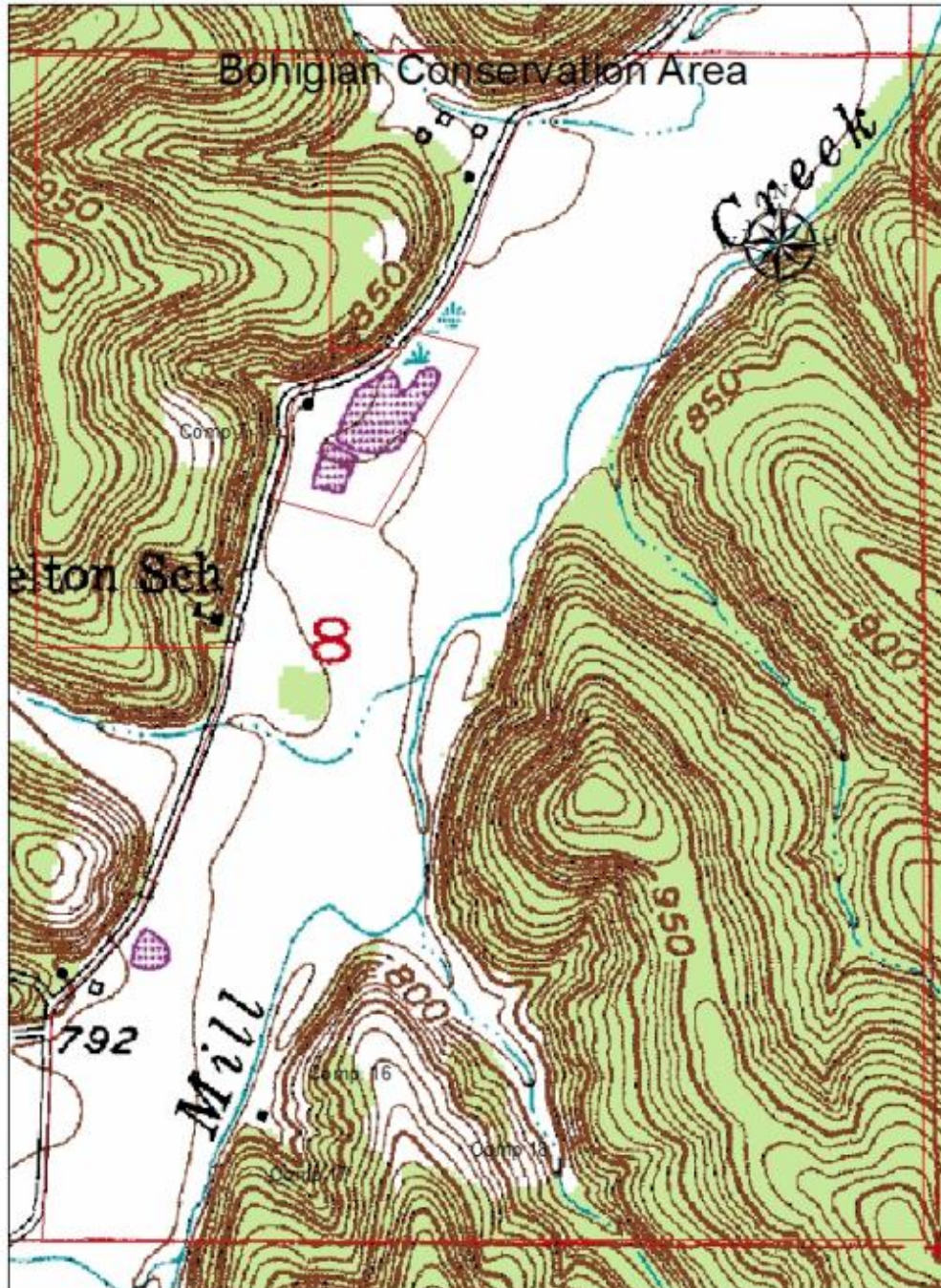
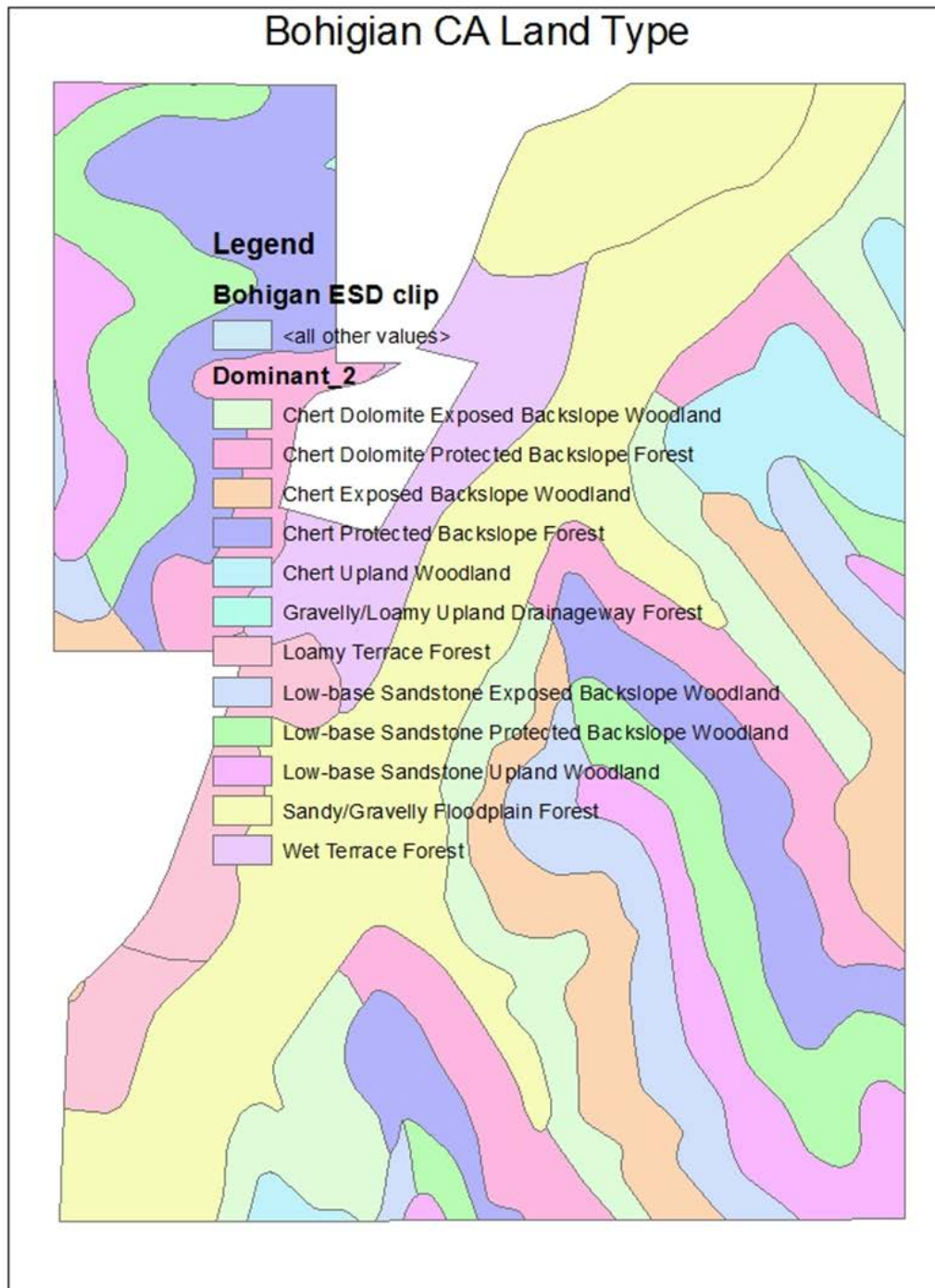


Figure 2: Aerial Map



Figure 3: Topographic Map





Appendix A. Bohigian Conservation Area Management Plan Public Comments

Received during public comment period (July 1-31, 2015):

Looks fine.

I frequently visit Bohigian for trout fishing, making the trip from St. Louis 10-15 times a year, so most of my comments regard item VI- Aquatic Resource Management considerations.

Challenges and Opportunities #1- I'd like to see more specifics-how much spawning habitat is on the property now? Where is it distributed? Can it be augmented? Where on the property should efforts be targeted?

No definition of “quality Blue Ribbon Trout Area” is provided in Strategy 1, nor any reference to the current status of wild trout in Mill Creek- population estimates or trends, size distributions, redd counts, measures of fish recruitment. If MDC plans to sample the stream every other year...what are they going to compare their results to? How are they going to quantify it as a “quality wild trout fishery?” The total number of fish, the number of spawners, the number over a certain length? It'd be nice to have more detail as to how those decisions are made.

Same with Strategy 2- How will habitat structures be maintained or enhanced? What structures will be added, and are their partnerships with TU or other groups to help with funding or manpower?

Under Management Objective 2- Where should efforts to minimize sediment/pollution be focused? Has consideration been given to potential sources of sediment or pollution through groundwater transport? Are their cooperative funds or projects with the Forest Service or private landowners which could help address sediment or pollution on a watershed scale? It'd be nice if the document linked the reader to the Watersheds and Stream Management Guidelines document.

Under Strategy 2, I'd be interested in knowing what herbicides MDC plans to use (specifically), during what time of year, and whether they have any documented adverse effects on non-target plants or animals. The same with Management Objective 3. If the wetland habitats haven't been surveyed for species of conservation concern (as seems to be suggested under Challenges and Opportunities), then it may be good to state those surveys will take place before herbicides are applied.

I think the terrestrial component could benefit from more detail as well. What was the historical vegetation of the region, and are the management proposals designed to restore those vegetation patterns? What terrestrial species would benefit from the management regime (quail?

Songbirds? Glade reptiles?). Why is bare-ground habitat a priority? What's the acreage of the different burn units, and are burns going to interfere with recreational activities? What is the current basal area of forest stands, and what is the target basal area? What herbicides will be used and when, and do they have any potential to affect other species? Are there any plans to re-seed grassland areas with native warm-season grasses and forbs, or is it expected the species will return naturally?

It's a good outline to a more thorough document. I think a lot of questions and concerns could be alleviated by simply providing more detail and specificity. Maps showing current and projected distribution of different habitat types would certainly help the public understand the trajectory of the property. Providing a timeline with discreet management goals (what projects will be implemented and completed when- for example, which units will be burned during what years), would also be extremely beneficial to the public.